
Lifestyles in adolescence: substance use and violence

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Introduction

Adolescence is generally considered as a period of health. If we compare the adolescent's group with the children's or elderly groups, they are the healthiest group given the lesser vulnerability of young people to illness. However, we also know that adolescents today are increasingly at risk for adverse health outcomes, namely illness, disability and even death (1-3).

An interesting question on this scope is that while in the past the major health threats to adolescents health were from biomedical order, nowadays these threats are essentially from social, environmental and especially behavioural order (1, 4). Many of the choices, with a longer impact in health, are made in this period of life, and this is why adolescence is a critical period in health chronology (5). Among these choices are the risk behaviours, i.e, for example, substance use (tobacco, alcohol, illicit drugs use), violence, delinquency, eating disorders, accidents, sexual risk behaviours and suicide. One question that has been raised in the last years about risk behaviours in adolescence is the differentiation between "different kinds" of risk behaviours. For some authors (6-9), it is important to distinguish between: (a) behaviours that bring in some danger but can be seen as constructive experiences that are part of the developmental process, and; b) behaviours that have potential to compromise the normal development of youth. During this period, adolescents have to fulfil several developmental tasks and this kind of behaviours can be seen as a tool to experience some new life features unknown until that moment, such as, gaining respect and acceptance from their peers and autonomy from their parents, rejecting established norms and values, coping with anxiety or frustration or to prove maturity (9, 10). Although these behaviours can be extremely dangerous especially when they conduct to alienation from commu-

nity, their families and peers and even from themselves (6). According to Braconnier & Marcelli (11) we should pay special attention to some aspects that can be indicators of a risky life style, such as frequency, extent and the clustering of several risk behaviours.

Risk behaviours are frequently associated to some maladjustment symptoms. Several studies (12-17) show that risk behaviour tends to be associated, for instance, to physical and psychological health complaints, and to problems in several contexts (family, peers, school). Another fact highlighted by these studies is that these behaviours co-occur. Tobacco use is associated to alcohol and illicit drugs use, illicit drugs use is associated to delinquency, substance use is associated to violence, and these externalizing problem behaviours are frequently associated to internalizing problem behaviours. It becomes therefore important to know the determinant factors of this type of behaviours in the adolescence, in its different life contexts. Only by knowing the factors that place young people at risk, as well as the factors that protect them from potential problems, will it be possible to delineate preventive interventions. Again, the research developed on this topic shows us that although these behaviours have several determinants they also share common determinants. There is a diversity of factors or paths that can lead to a certain consequence (equifinality concept) but there is also a diversity on the consequences that a single factor can produce (multifinality concept) (18). This is valid for risk factors, but also for protective factors. As it is widely recognized, these factors operate in several contexts, and these same contexts can act as protective or risky environments. For example [see Simões, 2005, for a review (17)], a family environment where there is good attachment and communication, democratic rules, and parental supervision of adolescent's behaviours, has the components to be a protective environment. On the other side, if in the family there is violence, communication difficulties, no rules or no supervision, we can be in the presence of a potential risky family context. The same can be observed in peer or school context. Peers that give support and that have negative attitudes towards risk behaviours can act as protection, but if the reverse is observed, friends may be a risk factor. In the school context, good relationships with teachers and classmates, security and participation opportunities generally act as protective factors, and the absence of these factors may promote risk in school context. But the risk or the protection can also be found at the individual level. Positive expectations and attitudes towards risk behaviours, low levels of social and decision making skills, certain personality features, such as audacity or sensation seeking, can be risk factors at this level. On the other hand, negative attitudes towards these kinds of behaviours, risk perception, maturity, and participation in leisure or sport activities are generally pointed out as protective factors at individual level. This last aspect is referred to in the literature as an important strategy to cope with stress, as well as an opportunity context for participation, relationships and promotion of social competencies (19, 20). The results of some

focus groups (17) also show that physical activity can be an important protective factor for tobacco use. The adolescents who participated in this study refer that tobacco use is not compatible with sport practice and the ones that were smokers feel the negative impact of tobacco use in their performance. They also refer that physical activity has some of the utilitarian functions of risk behaviours, such as socialization and relaxation, and it is also a good a manner to fill in free time (which they pointed out as a risk factor for substance use). Besides all these features, other factors, such as age and gender, constitute determinants factors of risk behaviours, as well as determinants of the allied relations to these same behaviours (14, 17, 21, 22). The involvement with risk behaviours increases with age, and in a general way boys present more externalizing problem behaviours, and girls more internalizing problem behaviours.

The purpose of this paper is (1) to examine the prevalence of substance use (tobacco, alcohol and illicit drugs) and violence in a large population-based sample of Portuguese adolescents; 2) to analyse the relationships between these behaviours; (3) to analyse the relationships between physical activity, substance use and violence, and (4) to consider the implications for both prevention and intervention.

Methods

The data used in this study is from the Portuguese 2002 HBSC study (16). Health Behaviour in School-aged Children (HBSC) is a cross-national research study conducted in collaboration with the WHO Regional Office for Europe (23). This study aims to gain new insight into health behaviours and their social context, and to increase our understanding of young people's health and well-being.

The data was collected through anonymous self-completion questionnaires, administered in the classroom by teachers. This study used a cluster sample drawn from grades 6, 8 and 10, which provides a national representative sample of 6131 Portuguese adolescents from these grades (49% male and 51% female). Subjects were 11 to 18 years old ($M=14$ years, $SD = 1.82$ years).

Results

Prevalence of substance use and violence

The results of the 2002 HBSC study show that the majority of the Portuguese school-aged adolescents are not involved in risk behaviours. Although a minority of adolescents reports a regular involvement in substance use and violence.

More specifically, in what concerns tobacco use in Portuguese adolescents (see Table 1), it is possible to see that more than one third of the adolescents reported having already smoked, and 13% report a regular consumption (every day or at least once a week). About 6%, report occasional consumption (less than once a week). As for alcohol use, the results show that more than half the participants state they had already tried alcoholic drinks, but only about 8% report a regular consumption (at least every month). Nevertheless is important to emphasize that almost a fifth of the adolescents report an occasional consumption of alcohol, especially spirits and beer.

Table 1. Observed percentages of tobacco and alcohol use for the total sample

	Tobacco	Alcohol
Experimentation	37.1%	56.1%
Regular consumption	13.0%	7.8%
Occasional consumption	5.6%	18.9%

In what concerns illicit drugs use, about 9% of the adolescents reported having already tried cannabis and about 4% and 2% reported having already r tried amphetamines and cocaine/opiates, respectively. About 7% state that theyhad used illicit drugs in the previous month at least once.

Table 2. Observed percentages of illicit drugs use for the total sample

	%
Experimentation	
Cannabis	9.2%
Amphetamines	3.5%
Cocaine, Opiates	1.8%
Last month's use	6.6%

Table 3. Observed percentages of violence for the total sample

	%
Involvement in physical fights last year	37.0%
Bullying others in the last two months	36.6%
Victims of bullying in the last two months	49.3%

Considering the prevalence for violence, it is possible to observe that more than a third of the adolescents reported having been involved in physical fights or in bullying situations as bullies (at least once). About one half of the adolescents reported they had been victims of bullying.

Looking for gender and age differences on these topics, the data from HBSC 2002 study (16) show that there are no significant differences between genders in what concerns tobacco use, but in what concerns alcohol and illicit drugs use, boys report great consumptions as compared to girls. Considering age differences, older adolescents report that they use substances (tobacco, alcohol and illicit drugs) more frequently than the younger ones. In what concerns violence, again boys report a great involvement in violence situations. Regarding age differences on violence, it is possible to see that the ones that are more involved in this kind of risk behaviour are the 13 years old adolescents group. This group reports a great involvement in physical fights and in bullying situations, as bullies and as victims of bullying. The younger ones state that they are more frequently victims of bullying, and the older ones state a great involvement as bullies (see Matos & Equipa do Aventura Social, 2003 for more details).

Relationships between risk behaviours

To examine the relationships between tobacco, alcohol, illicit drugs use and violence, a correlation analysis (spearman correlations) has been conducted. The results show (see Table 4) that tobacco use is positively associated with alcohol use and illicit drugs use. Alcohol use and illicit drugs use are also associated, but the correlation is smaller comparatively to their correlations with tobacco. Similarly to substance use, the different categories of violence are positively associated. Violence is also positively associated to substance use, but these associations are weaker than the correlations between the different kinds of substance use or violence. All the above mentioned correlations are significant at .001. Being victim of bullying is the variable that shows the weaker correlations with tobacco and alcohol use, and the correlation with illicit drugs use is not significant.

Other results of the HBSC 2002 study (16) had also shown that risk behaviours tend to co-occur with other symptoms of maladjustment. For instance, tobacco use is associated to difficulties to talk with the father, feelings of loneliness and unhappiness, and a negative attitude towards school. Alcohol use is also associated to a negative attitude towards school, and illicit drugs use is associated to difficulties to talk with the mother and to the perception of teacher's low support. Violence (bullying others) is associated to a negative attitude towards school, health complaints (psychological and physical), and difficulties to talk with the father (see Matos & Equipa do Aventura Social, 2003 for more details).

Table 4. Correlations between different kinds of substance use and violence (R Spearman)

	Tobacco	Beer	Spirits	Illicit drugs use	Physical fights	Victim of bullying
Beer	.428***					
Spirits	.458***	.573***				
Illicit drugs use	.465***	.307***	.327***			
Physical fights	.099***	.140***	.097***	.151***		
Victim of bullying	.028*	.043**	.027*	.018	.353***	
Bullying others	.130***	.167***	.155***	.124***	.348***	.410***

*** $p < .001$; ** $p < .01$; * $p < .05$ (2-tailed)

Relationships between physical activity, substance use and violence

To analyse the relationships between physical activity and risk behaviours we have chosen the question “Outside school hours, how many hours a week do you usually exercise in your free time, and so much that you get out of breath or sweating?” This question has six answer categories (1= none; 2= about half an hour; 3= about an hour; 4= about 2 to 3 hours; 5= about 4 to 6 hours; 6= 7 hours or more). In this paper we are going to present the significant relationships between the risk behaviours and two of the answer categories: “none” and “about 2 to 3 hours a week”. Besides risk behaviours, other variables, such as gender and age, health complaints, perception of health and happiness, satisfaction with their bodies and satisfaction with school have been introduced in the analysis. Thus, we will try to perceive the features associated to the absence of physical activity practice (outside school hours) and the features associated to the practice of physical activity according to the international recommendations (24) for an effective and healthy practice (in terms of hours a week). The results show that 17.3% of the adolescents report that do not practice physical activity outside school hours. Girls report more frequently that they do not practice physical activity. Looking at Table 5, it is possible to see that 22.8% of the girls state that they do not practice physical activity, outside school hours, and from the ones that state that they do not practice physical activity, 69.4% are girls. In what concerns the association of physical activity with substance use and violence, it is possible to observe that only tobacco use, physical fights and bullying others are significantly associated to lack of physical activity. The results show that the adolescents that report having no hour of practice outside school hours report more frequently that they have already ever tried tobacco and that they smoke every day, but also that they are not involved in physical fights or in bullying situations as bullies. The absence of physical activity practice is

also significantly associated to some other negative factors. Adolescents that report having no hours of physical activity practice report more frequently that they have physical and psychological health complaints, such as headache and stomach-ache, difficulties in getting to sleep, feeling low, nervous, irritability or bad temper (about every day or more than once a week). They also report more frequently that their health is just fair, they feel unhappy or not very happy, they would like to change their bodies, and they don't like school very much.

Table 5. Partial and global percentages for variables and categories significantly associated to the category (CAT) "none" of the variable "hours of physical activity practice"

V.TES [*]	%CLA/CAT	%CAT/CLA	%GLOBAL	Variables	Class (CLA)
9.45***	22.82	69.35	52.43	Gender	Female
5.52***	30.68	12.80	7.19	Feeling low	About every day
5.03***	23.60	28.59	20.90	Health perception	Fair
4.59***	24.14	22.27	15.91	Happiness	Not very happy
4.22***	19.05	75.04	67.96	Physical fights	Not involved
4.14***	25.26	15.32	10.46	Feeling nervous	About every day
3.84***	19.12	69.04	62.29	Bullying others	No
3.77***	31.62	5.85	3.19	Happiness	Unhappy
3.62***	23.53	17.06	12.51	Tobacco use	Every day
3.33***	22.93	17.06	12.83	Irritability or bad temper	About every week
3.25**	24.57	11.37	7.98	Difficulties in getting to sleep	About every day
3.16**	25.69	8.85	5.94	Headache	About every day
3.01**	19.14	55.77	50.25	Ever tried tobacco	Yes
2.80**	21.71	18.01	14.31	Irritability or bad temper	More than once a week
2.79**	22.97	12.48	9.37	Headache	More than once a week
2.70**	26.67	5.69	3.68	Stomach-ache	More than once a week
2.61**	18.87	55.77	50.98	Like to change body	Yes
2.49**	20.65	21.96	18.34	School satisfaction	Don't like it very much

In what concern the category "about 2 to 3 hours a week", 26.8% of the adolescents report this level of physical activity practice outside school hours. Boys more frequently report that they practice physical activity. Looking at Table 6, it is possible to see that 30.5% of the boys state that they practice 2 to 3 hours of physical activity, outside school hours, and from the ones that state that they practice 2 to 3 hours of physical activity, 54.1% are boys. In what concerns the association of physical activity with substance use and violence, it is possible to see that, again, only tobacco use and bullying others are significantly associated to physical activity practice. The results show that the adolescents that report the practice of 2 to 3 hours of physical activity outside school hours report more frequently that they do not smoke, but also that they

had bullied others about 2 to 3 times a month. The physical activity practice is also significantly associated to some positive factors. Adolescents that report physical activity practice (about 2 to 3 times a week) report more frequently that they rarely or never have headaches and feel low. They also report more frequently that their health is excellent, feel very happy and that they would not like to change their bodies.

Table 6. Partial and global percentages for variables and categories significantly associated to the category (CAT) "about 2 to 3 hours" of the variable "hours of physical activity practice"

V.TEST	%CLA/CAT	%CAT/CLA	%GLOBAL	Variables	Class (CLA)
4.76***	30.53	54.11	47.57	Gender	Male
3.71***	32.18	25.58	21.34	Happiness	Very happy
3.19**	29.40	50.36	45.97	Like to change body	No
3.18**	29.31	51.98	47.60	Feeling low	Rarely or never
3.11**	31.20	25.79	22.18	Health perception	Excellent
2.95**	28.14	77.16	73.60	Tobacco use	Don't smoke
2.79**	28.58	62.23	58.45	Headache	Rarely or never
2.51**	36.69	5.18	3.79	Bullying others	2 or 3 times a month

Discussion

The 2002 HBSC study shows that the major part of the Portuguese adolescents goes through this period of their lives without much trouble, although a minority shows evidences of contexts, processes and behaviours that can compromise their health and quality of life in the present and in the future. This is clear in the results obtained in this present study, where we have analysed in more detail substance use and violence. Only a small part of the adolescents report an involvement in this kind of risk behaviours. More specifically, in what concerns substance use, it was possible to observe that experimentation is more frequently reported by the adolescents than regular or occasional consumption. Tobacco consumption is the behaviour more frequently referred to in terms of regular use, while alcohol consumption is more frequently referred to in terms of occasional use. Tobacco and alcohol use are consumed more frequently than illicit drugs. In what concern this kind of substances it was possible to see that cannabis is the substance more frequently referred to by the adolescents in terms of experimentation, followed by amphetamines and finally cocaine and opiates. In what concerns violence, it was possible to see that about half of the adolescents refer that they had been victims of bullying in the last two months, and about a third report that they had been involved in physical fights and bullying situations as bullies. The results of this study have also shown that risk behaviours co-occur with other risk behaviours.

The different kinds of substance use are positively associated (tobacco, alcohol and illicit drugs use), as well as different kinds of violence (physical fights and bullying), and substance use is also positively associated with violence. Besides the associations of these behaviours between themselves, risk behaviours are also associated to maladjustment symptoms in several life contexts: personal, family, peers and school (12-17). The results of the 2002 HBSC study show that, for instance, feelings of loneliness and unhappiness, physical and psychological symptoms, difficulties in the communication with the parents, and a negative attitude towards school are related with this kind of risk behaviours. Age and gender are also important variables associated to these behaviours. Again, the results of the 2002 HBSC study show that age is positively associated to substance use, which means that older adolescents present a great involvement in substance use. In what concerns violence, it was possible to observe that the relation between age and violence is a little bit more complex, since the younger ones report more frequently to be victims of bullying, the older ones report more frequently to bully others and the "middles ones" (with 13 years old) report more frequently that they have a dual involvement (as victim and as bullies) as well as a great involvement in physical fights. In what concerns gender, the 2002 HBSC study shows that boys are more involved in alcohol and illicit drugs use, as well as in violence situations. No significant gender differences were observed in what concerns tobacco use. In what concerns the association between substance use and violence with physical activity, it was possible to see that physical activity seems to be a protective factor for tobacco use and for a positive perception of important personal features such as body image, health and happiness. Alcohol and illicit drugs use did not show significant relationships with physical activity practice (at the two levels reviewed in this study). These results support other studies (17) that point out to the fact that physical activity practice can be an important protective factor for tobacco use. This can be due to the fact that tobacco presents a negative impact in sport performance, and also because physical activity can load some of the utilitarian function of tobacco use, like socialization, relaxation and filling in free times, in a more healthy way. As it is well known, risk behaviours present several threats for a healthy development (1, 4), and adolescence is a life stage where many of the long term health related choices, are made (5). That is why prevention is so important (25-28). On this scope, we would like to highlight some questions in the prevention scene, specifically the need of early intervention, and the promotion of protective factors. The need of early intervention is referred to in several studies that show that the involvement in problematic behaviours increases with the age. Beyond this aspect, it is known that previous behaviour constitutes one of the main determinants of future behaviour. Therefore it is important to intervene in early developmental stages, where experimentation has not occurred yet. Although not all adolescents that try substances evolve to regular con-

sumption, it is known that experimentation constitutes a basic stage in substance use development, namely for attitudes development, and attitudes are one important behaviour determinant (29, 30). The promotion of protective factors should constitute the essence of the intervention. The concept of resilience contributed enormously for this current conception of prevention, as well as the research beyond it, which has privileged the search of protective factors and processes. This search has shown that protection, similarly to risk, occurs in different contexts. It seems therefore that any preventive work at the individual level must approach life contexts, in order to get an effective reduction of risk, an activation of resources, and the promotion of personal and social abilities. Individuals that have this kind of abilities show a greater capacity to adapt to different situations and to deal with adversity. And finally, it is urgent to design interventions for several behaviours since research shows us that risk behaviour have similar determinants, but can especially be prevented by the promotion of similar protective factors (31, 32). We must also refer to a limitation of this study, which is the fact that the findings are based entirely on adolescents' self-reports and biases in perception and reporting cannot be ruled out. Despite this limitation, this study used a large sample of adolescents and the sampling procedures helped to ensure a nationally representative sample.

Acknowledgements

The authors would like to thank the Portuguese HBSC team – “Aventura Social”, for their work on collection and data management.

The Portuguese HBSC study was funded in 2002 by Fundação para a Ciência e Tecnologia / Ministério da Ciência e do Ensino Superior / Projecto POCTI-37486/PSI/2001-Jan 2002-2004), Comissão Nacional de Luta Contra a SIDA (specific study), and PSIDA/PSI/49649/ 2003.

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